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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,151	01/06/2006	JoAnn Burkholder	5051-660	2957

20792 7590 07/24/2008
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EXAMINER	
FORD, VANESSA L	
ART UNIT	PAPER NUMBER
1645	
MAIL DATE	DELIVERY MODE
07/24/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/530,151	BURKHOLDER ET AL.	
	Examiner	Art Unit	
	VANESSA L. FORD	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 April 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14* is/are pending in the application.

4a) Of the above claim(s) *1-7* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 April 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/1/05&4/9/08*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This action is responsive to Applicant's election of Group II, claims 8-14, with traverse filed April 9, 2008. Claims 1-7 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. Claims 8-14 are under examination in this office action.

This application contains claim 1-7 drawn to an invention nonelected with traverse in the reply filed on April 9, 2008. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Applicant urges a search of the claims of Group I overlaps with a search of the claims of Group II, such that the two Groups should be examined together.

These arguments have been fully considered but are not found to be persuasive for the reasons below:

Groups I and II are considered as independent and distinct inventions based in classification and as defined in MPEP section 803.

MPEP 803 states that restriction is proper between patentably distinct inventions where the inventions are (1) independent or distinct as claimed and (2) a serious search and examination burden is placed on the examiner if restriction is not required.

The term "distinct" is defined to mean that two or more subjects as disclosed are related, for example as product and method of use, etc., but are capable of separate manufacture, use or sale as claimed, and are patentable over each other (see MPEP

802.01). In the instant situation, the inventions of Groups I-II are drawn to distinct inventions which are separate products and methods capable of separate manufacture, use or sale as described in the previous Office Action.

Classification of the subject matter is merely one indication of the burdensome nature of the search. The literature search, particularly relevant in this art, is not co-extensive, because for example, Groups I is drawn to products. Groups II is drawn to methods which require different method steps, parameters and endpoints. Clearly different searches and issues are involved in the examination of each Group.

For these reasons the restriction requirement is deemed to be proper and is therefore made FINAL.

Claim Objection

2. Claim 8 is objected to for the following informality: Claim 8 recites "a method of isolated and purified *Pfiesteria* toxin….". The claim states the method in the past tense as if it had been previously performed. Claim 8 should be amended to recite "a method of isolating and purifying *Pfiesteria* toxin…". Correction is required.

3. Claim 9 is objected to because it refers to Figure 1. Applicant is reminded that in accordance with *Ex parte Fressola* (27 USPQ 2d 1608, BPAI 1993) that the modern claim practice requires the claims stand alone to define the invention. Correction is required.

4. Claim 13 is objected to because of the following informality: "*Pfiesteria piscicidae*" should be changed to "*Pfiesteria piscicida*". Correction is required.

It is known in the art that *Pfiesteria piscicida* contains a lipophilic-soluble portion as well as a polar extracts. See Moeller et al. It is known in the art that Iatrobeads are used to seperate glycosphingolipids. See Watanabe et al and Larson et al. Thus, the Examiner is viewing *Pfiesteria* species isolated in the claimed method to have a lipid portion.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 8-9 and 12-13 are rejected under 35 U.S.C. 102(b) is anticipated by Moeller et al *(Environmental Health Perspectives, Vol.109, Supplement 5, October 2001)*.

Independent claim 8 is drawn to a method of isolated and purified *Pfiesteria* toxin comprising the steps of (a) culturing a *Pfiesteria* species in a growth media to produce *Pfiesteria* toxin therein; (b) separating a first fraction of organic compounds including said *Pfiesteria* toxin from said growth media; (c) separating a second fraction consisting essentially of said *Pfiesteria* toxin from first fraction by chromatography with porous silica beads.

Moeller et al teach a method of isolating and characterizing *Pfiesteria piscicida* toxin (see the Abstract). Moeller et al teach that *Pfiesteria piscicida* contains a lipophilic-soluble portion (lipid portion) as well as a polar extracts (page 739). Moeller et al teach that *Pfiesteria piscicida* was cultured in culture medium (saltwater (SW/Instant Ocean)(Materials and Methods section, page 740). Moeller et al teach that the cell mass (first fraction, claim 8) as well as the filtered SW medium (second fraction, claim 8) were processed separately from subsequent extraction workup and testing (page 740). Moeller et al teach that the cell mass (first fraction) was extracted using pore size silica gel and analyzed by nuclear magnetic resonance spectroscopy (NMR)(page 740). Moeller et al teach that the seawater medium (second fraction) was extracted through a glass-column chromatography using silica as the solid phase in a fashion identical to that described for the cell mass (page 740). The claim limitation "the claim 8, where said second fraction is characterized by an NMR spectrum as given in Figure 1 herein would be inherent in the teachings of the prior art since Moeller et al teach that all semipurified and purified compounds derived in the isolation schemes were submitted for structural analysis and chemical characterization using gas chromatography-MS (GC-MS) and (NMR)(page 741).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 8-13 are rejected under 35 U.S.C. 103(a) as unpatentable over Moeller et al *(Environmental Health Perspectives, Vol.109, Supplement 5, October 2001)* in view of Larson et al *(The Journal of Biological Chemistry, Vol. 263, No.22, August 5, pp. 10780-10798)* and further in view of Watanabe et al *(Journal of Lipid Research, Vol. 22, 1981, p. 1020-1024).*

Independent claim 8 is drawn to a method of isolated and purified *Pfiesteria* toxin comprising the steps of (a) culturing a *Pfiesteria* species in a growth media to produce *Pfiesteria* toxin therein; (b) separating a first fraction of organic compounds including said *Pfiesteria* toxin from said growth media; (c) separating a second fraction consisting essentially of said *Pfiesteria* toxin from first fraction by chromatography with porous silica beads.

Dependent 10 is drawn to the method of claim 8, wherein said porous silica beads are Iatrobeads.

Dependent 11 is drawn to the method of claim 8, wherein said porous silica beads are 6RS-8060 Iatrobeads".

Moeller et al teach a method of isolating and characterizing *Pfiesteria piscicida* toxin (see the Abstract). Moeller et al teach that *Pfiesteria piscicida* was cultured in culture medium (saltwater (SW/Instant Ocean)(Materials and Methods section, page 740). Moeller et al teach that the cell mass (first fraction, claim 8) as well as the filtered SW medium (second fraction, claim 8) were processed separately from subsequent extraction workup and testing (page 740). Moeller et al teach that the cell mass (first fraction) was extracted using pore size silica gel and analyzed by nuclear magnetic resonance spectroscopy (NMR)(page 740). Moeller et al teach that the seawater medium (second fraction) was extracted through a glass-column chromatography using silica as the solid phase in a fashion identical to that described for the cell mass (page 740). Moeller et al teach that all semipurified and purified compounds derived in the isolation schemes were submitted for structural analysis and chemical characterization using gas chromatography-MS (GC-MS) and (NMR)(page 741).

Moeller et al do not teach the claim limitations "the method of claim 8, wherein said porous silica beads are Iatrobeads" or "the method of claim 8, wherein said porous silica beads are 6RS-8060 Iatrobeads".

Larson et al teach that 6RS-8060 Iatrobeads can be used to separate glycolipids in isolation and purification processes (page 10791, 2nd column).

It would been *prima facie* obvious at the time the invention was made to modify the method of isolating an purifying *Pfiesteria piscicida* toxin as taught by Moeller et al to use the 6RS-8060 Iatrobeads as taught by Larson et al because Moeller et al teach that *Pfiesteria piscicida* comprises a lipophilic portion (page 739) and Watanabe et al

teach that the solvent system using a column packed with silica gel (Iatrobeads) is used to extract glycolipids and also provides the advantage of being non-toxic as compared with the chloroform-methanol system which is highly toxic (page 1024, 1st column). It would be expected, absent evidence to the contrary, that the use of Iatrobeads as taught by Larson et al and Watanabe et al would be effective in separating glycolipids or lipophilic portions without resulting in a product which is highly toxic.

Additionally, *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007), discloses that if a technique has been used to improve one method, and a person of ordinary skill would recognize that it would be used in similar methods in the same way, using the technique is obvious unless its application is beyond that person's skill. *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) also discloses that "The combination of familiar element according to known methods is likely to be obvious when it does no more than yield predictable results". It well known in the art to isolate and purify *Pfiesteria* toxin. See Moeller et al. It is known in the art to use Iatrobeads (6RS-8060 Iatrobeads) to separated and purify glycolipids. See Watanabe et al and Larson et al. Thus, it would be obvious to apply a known technique to a known product to be used in a known method that is ready for improvement to yield predictable results.

Thus, the combination of prior art references as combined provided a *prima facie* case of obviousness, absent convincing evidence to the contrary.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as unpatentable over Moeller et al, Larson et al and Watanabe et al as applied to claims 8-13 above and further in view of Glasgow et al (*Phycologia, Volume 40(3), August 13, 2001, p. 234-245).*

Dependent claim 14 is drawn to the method of claim 8, wherein said *Pfiesteria* species is *Pfiesteria shumwayae.*

The teachings of Moeller et al, Larson et al and Watanabe et al have been described previously.

Moeller et al, Larson et al and Watanabe et al do not teach the claim limitation "wherein method of claim 8, wherein said *Pfiesteria* species is *Pfiesteria shumwayae".*

Glasgow et al teach a second species of icthyotoxic *Pfiesteria* which is named *Pfiesteria shumwayae Glasgow & Burkholder sp.nov.*(see the Title and the Abstract). Glasgow et al teach that both species of *Pfiesteria* species (*Pfiesteria piscicida) and Pfiesteria shumwayae)* have attraction to live fish and their fresh tissues (page 242 (2nd column). Glasgow et al teach that both *Pfiesteria* species toxins are bioactive compounds that cause fish stress, disease and death (page 242, 2nd column).

It would been *prima facie* obvious at the time the invention was made to modify the method of isolating and purifying *Pfiesteria* toxin as taught by Moeller et al to include isolation and purification of *Pfiesteria piscicida* as well as *Pfiesteria shumwayae* because Glasgow et al teach that both *Pfiesteria* species toxins are bioactive compounds that cause fish stress, disease and death (page 242, 2nd column). It would have been obvious, absent evidence to the contrary, that the isolation and purification

method as combined above would be effective in isolating and purifiying toxin from *Pfiesteria piacicida* and *Pfiesteria shumwayae.*

Additionally, *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007), discloses that if a technique has been used to improve one method, and a person of ordinary skill would recognize that it would be used in similar methods in the same way, using the technique is obvious unless its application is beyond that person's skill. *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (2007) also discloses that "The combination of familiar element according to known methods is likely to be obvious when it does no more than yield predictable results". It well known in the art to isolate and purify *Pfiesteria* toxin. See Moeller et al. It is known in the art to use Iatrobeads (6RS-8060 Iatrobeads) to separated and purify glycolipids. See Watanabe et al and Larson et al. It is further known in the art that there are two species of *Pfiesteria* (*Pfiesteria piscicda* and *Pfiesteria shumwayae)* which are toxin producers that affect fish. See Glasgow et al. It would be obvious to isolate and purify the toxins from *Pfiesteria piscicida* as well as *Pfiesteria shumwayae* . Thus, it would be obvious to apply a known technique to a known product to be used in a known method that is ready for improvement to yield predictable results.

Thus, the combination of prior art references as combined provided a *prima facie* case of obviousness, absent convincing evidence to the contrary.

Status of Claims

8. No claims are allowed.

Conclusion

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa L. Ford whose telephone number is (571) 272-0857. The examiner can normally be reached on 9 am- 6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on (571) 272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Vanessa L. Ford/
Patent Examiner, Art Unit 1645
July 20, 2008